

WHAT IS CLAIMED IS:

1. A method of producing a semiconductor device,  
comprising the steps of:

5        forming a non-crystal semiconductor film on a substrate;  
      heating said non-crystal semiconductor film: and  
      eliminating projections generated by said heating on said  
non-crystal semiconductor film using a physical elimination  
method.

10       2. A method of producing a semiconductor device  
according to claim 1, wherein said physical elimination method  
comprises an ion milling method for applying ion beam  
irradiation to said projections to eliminate said projections.

15       3. A method of producing a semiconductor device  
according to claim 2, wherein an angle  $\theta$  formed by an  
incident direction of the ion beam from said ion milling and a  
direction of a normal line of a surface of said non-crystal  
20 semiconductor film is  $60^\circ$  to  $90^\circ$ .

25       4. A method of producing a semiconductor device  
according to claim 1, wherein said heating step comprises a  
step of applying laser beam irradiation for fusing and  
recrystallizing said non-crystal semiconductor film.

5. A method of producing a semiconductor device

according to claim 4, wherein said physical elimination method comprises an ion milling method for applying ion beam irradiation to said projections to eliminate said projections.

5        6. A method of producing a semiconductor device according to claim 5, wherein an angle  $\theta$  formed by an incident direction of the ion beam from said ion milling and a direction of a normal line of a surface of said non-crystal semiconductor film is  $60^\circ$  to  $90^\circ$ .

10       7. A semiconductor device comprising:  
a substrate; and  
a non-crystal semiconductor film formed on said substrate,

15       wherein said non-crystal semiconductor film has a planar surface formed by eliminating, using ion beam irradiation, projections generated on said non-crystal semiconductor film due to heating of said non-crystal semiconductor film.